



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,155	03/27/2001	Masato Hasegawa	50395-096	7094

7590

07/31/2003

McDERMOTT, WILL & EMERY
600 13th Street, N. W.
Washington, DC 20005-3096

EXAMINER

LEE, SHUN K

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,155

Applicant(s)

HASEGAWA ET AL.

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on 14 May 2003. These drawings are acceptable.

Specification

2. The amendment filed 14 May 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: in the paragraph beginning at line 7 on pg. 17, applicant has deleted "cobal (trade name)". However, the amended sentence now reads in part as "ZnS or spinel (MgAl_2O_4) is used in the ceramic and is used in the supporting part" which is not supported by the original disclosure as filed.

Applicant is required to cancel the new matter in the reply to this Office Action.

3. The use of the trademark COBAL (pg. 43, line 10) has been noted in this application. It should be capitalized (e.g., COBAL) wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 5, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Roy *et al.* (US 3,974,249) and Grossinger *et al.* (US 5,712,622).

In regard to claims 1, 5, and 6, Tower *et al.* disclose (Figs. 1 and 5) a sensor, having a lens body (12), comprising ceramic (column 2, line 63 to column 3, line 7), a supporting part (16, 60), which supports said lens body (12), and a detection part (*i.e.*, optically active portion 32 of the electronic device 24), which detects the light that has

Art Unit: 2878

been transmitted through said lens body (12). Tower *et al.* also disclose (column 2, line 63 to column 3, line 7) that the lens body is formed from any suitable ceramic (e.g., the main component is MgAl_2O_4 which is also referred to as spinel) or glass such that that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation. The sensor of Tower *et al.* lacks that the MgAl_2O_4 lens body has 50% or more linear light transmittance at 3 to 5 μm wavelength and contains a pigment that shields visible light. However, the properties of MgAl_2O_4 are well known in the art. For example, Roy *et al.* teach (column 5, lines 6-55) that MgAl_2O_4 has 50% or more linear light transmittance at 3 to 5 μm wavelength. Further, Grossinger *et al.* teach (column 2, lines 1-9) it is known in the art to provide a lens with pigment particles that absorbs and diffuses (*i.e.*, shields) visible light in order to counteract visible light heating without distorting or attenuating infrared radiation. Therefore it would have been obvious to one having ordinary skill in the art to provide the MgAl_2O_4 lens body (having 50% or more linear light transmittance at 3 to 5 μm wavelength) in the sensor of Tower *et al.*, with a pigment that shields visible light in order to counteract visible light heating of the MgAl_2O_4 lens body without distorting or attenuating the desired wavelengths of infrared radiation.

In regard to claim 9 which is dependent on claim 1, Tower *et al.* also disclose (column 3, lines 35-45, column 4, lines 44-53) that said supporting part (16, 60) is comprised of metal.

8. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Roy *et al.* (US 3,974,249) and Grossinger *et al.*

Art Unit: 2878

(US 5,712,622) as applied to claim 1 above, and further in view of Carnall, Jr. *et al.* (US 3,131,238).

In regard to claims **3** and **4** which are dependent on claim 1, the modified sensor of Tower *et al.* lacks that the main component of said ceramic of said lens body is zinc sulfide (ZnS) having 50% or more linear light transmittance at 8 to 12 μm wavelength. Tower *et al.* also disclose (column 2, lines 63-66) that the lens body is formed from any suitable ceramic or glass such that that light of a desired wavelength will pass through the lens body with minimal distortion or attenuation. Zinc sulfide ceramic lenses are well known in the art. For example, Carnall, Jr. *et al.* teach (column 5, line 50 to column 6, line 62) a 1.6 mm thick zinc sulfide infrared optical element have a linear light transmittance of 50% or more (e.g., 75% at 8 μm wavelength). Therefore it would have been obvious to one having ordinary skill in the art that the lens body in the modified sensor of Tower *et al.* has a linear light transmittance of 50% or more at a desired infrared wavelength (e.g., 3 to 5 μm wavelength or 8 to 12 μm wavelength), in order to pass a desired infrared wavelength light (e.g., 8 μm wavelength) through the lens body with minimal distortion or attenuation.

9. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Roy *et al.* (US 3,974,249) and Grossinger *et al.* (US 5,712,622) and Scherber *et al.* (US 4,708,419).

In regard to claims **2** and **10**, Tower *et al.* in view of Roy *et al.* and Grossinger *et al.* is applied as in claim 1 above. The modified sensor of Tower *et al.* lacks a resin layer (e.g., a polyethylene layer) that covers at least the light receiving

surface of the ceramic part of the lens body (12). Scherber *et al.* teach (column 3, lines 3-58) to provide a polyethylene layer overlying infrared components in order to protect the infrared components. Therefore it would have been obvious to one having ordinary skill in the art to provide a polyethylene layer overlying the lens body in the modified sensor of Tower *et al.*, in order to protect the lens body as taught by Scherber *et al.*

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tower *et al.* (US 6,020,628) in view of Roy *et al.* (US 3,974,249), Grossinger *et al.* (US 5,712,622), and Scherber *et al.* (US 4,708,419) as applied to claim 10 above, and further in view of Silvestrini *et al.* (US 4,323,619).

In regard to claim 11 which is dependent on claim 10, the modified sensor of Tower *et al.* lacks that said polyethylene is high-density polyethylene. The infrared transmission of high-density polyethylene is well known in the art. For example, Silvestrini *et al.* teach (column 3, lines 18-27) that a 100 μm thick high-density polyethylene film has an absorption of between 10% to 15% in the 8-13 μm range. Therefore it would have been obvious to one having ordinary skill in the art to provide a high-density polyethylene layer overlying the lens body in the modified sensor of Tower *et al.*, in order to protect the lens body while minimizing infrared attenuation.

11. Claims 1, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622).

In regard to claim 1, Castleman discloses (Figs. 8 and 9) a sensor, having a lens body (232), comprising ceramic (*i.e.*, sapphire; column 13, lines 36-47), a supporting part (230), which supports said lens body (232), and a detection part (236), which

detects the light that has been transmitted through said lens body (232). The ceramic sensor of Castleman lacks a pigment that shields visible light is contained in the lens body. Grossinger *et al.* teach (column 2, lines 1-9) it is known in the art to provide the lens with pigment particles that absorbs and diffuses (*i.e.*, shields) visible light in order to counteract visible light heating. Therefore it would have been obvious to one having ordinary skill in the art to provide the lens body in the sensor of Castleman with a pigment that shields visible light in order to counteract visible light heating.

In regard to claims **7** and **8** which are dependent on claim 1, Castleman also discloses (column 13, lines 11-20 and 36-47) that said supporting part is comprised of resin (*i.e.*, plastic housing).

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Castleman (US 6,153,881) in view of Grossinger *et al.* (US 5,712,622) as applied to claim 1 above, and further in view of Adachi *et al.* (US 4,302,674).

In regard to claim **12** which is dependent on claim 1, the modified sensor of Castleman lacks that said supporting part includes a cylindrical part, which is formed between the portion of said lens body that transmits light and said detection part. Adachi *et al.* teach (column 5, lines 46-58) to provide a cylindrical part in order to receive only substantially perpendicular radiation relative to the detection part. Therefore it would have been obvious to one having ordinary skill in the art to provide a cylindrical part between the lens body and the detection part in the modified sensor of Castleman, in order to receive only substantially perpendicular radiation relative to the detection part as taught by Adachi *et al.*

Response to Arguments

13. Applicant's arguments filed 14 May 2003 have been fully considered but they are not persuasive.

Applicant argues that both Tower *et al.* and Grossinger *et al.* teach away from using a pigment since Tower *et al.* teaches an anti-reflective coating and Grossinger *et al.* disclose that pigmentation has numerous drawbacks. Applicant also argues that the additional cited references fail to remedy this deficiency. Examiner respectfully disagrees. First it should be noted that the function of an anti-reflective coating is to prevent light reflection at lens surfaces (*i.e.*, an anti-reflective coating minimizes light reflection). Second, a pigment is used to provide a filtering function (*i.e.*, transmitting only desired wavelengths). Thus a lens comprising both an anti-reflective coating and a pigment would transmit only the desired wavelengths while minimizing reflections of desired wavelengths from the lens surface. Therefore, an anti-reflective coating does not teach away from a filtering pigment. In regard to the drawbacks of the pigmentation, it should be noted that Grossinger *et al.* disclose (column 2, lines 10-20) that pigments are unsuitable for long term outdoor use and does not allow the use of indicator LEDs within the detector. Thus it can be concluded that the known prior art pigmentation should probably not be used with indicator LEDs within the detector or used outdoors. On the other hand, these drawbacks do not exist when indicator LEDs are not used within the detector or not used outdoors. Moreover, Grossinger *et al.* explicitly disclose (column 4, lines 43-54) that these drawbacks can be minimized by using smaller amounts of pigmentation. Thus it is clear that Grossinger *et al.* does not

Art Unit: 2878

teach away from using a pigment but rather explicitly teach the use of pigments in some preferred embodiments.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Constantine H. H. H.
CONSTANTINE H. H. H.
PRIMARY EXAMINER
GROUP ART UNIT 2878

SL
July 16, 2003